

US gas export pioneers forced to sell shares amid market slump



Two pioneers of the U.S. natural gas export industry were forced to sell shares of the company they founded amid a global market rout and concern that a key supply deal won't be finalized.

Tellurian Inc. Chairman Charif Souki and Vice Chairman Martin Houston sold 4 million and 3.4 million shares respectively, according to filings late Friday. In both cases, the transactions were forced by a lender to satisfy loan requirements, the filings show. Tellurian declined to comment.

Shares of the company, which is trying to develop a \$28 billion liquefied natural gas terminal in Louisiana, plunged

by more than half on Friday to close at \$1.80. The total weekly decline was 72%.

India's Petronet LNG Ltd., a potential major customer that Tellurian has courted, announced earlier this week it would seek competing offers. The move highlights the mounting pressure on sellers amid a worldwide glut, and adds to doubts that Tellurian will be able to secure a sizable anchor investment from Petronet for its Driftwood LNG project. The Petronet news also dashed hopes that the two companies might finalize a supply agreement during President Donald Trump's visit to India this week.

The coronavirus outbreak, meanwhile, sent global markets spiraling lower, adding to Tellurian's woes. The epidemic has hit China, South Korea and Japan, the world's biggest LNG importers, particularly hard.

"Continued commercial slippage, mounting liquidity concerns, and the broader market de-risking have combined to price-in the new economic reality for Tellurian: It's not going to make it," Michael Webber, managing partner at Webber Research & Advisory LLC, wrote in a note to clients Friday.

Tellurian said Thursday it had extended a memorandum of understanding with Petronet by two months to May 31. Under the memorandum, Petronet agreed to negotiate the purchase of as much as 5 million tons a year of LNG from Driftwood, along with an equity investment.

Collapsing LNG prices in Asia and Europe have squeezed profits for American gas exporters, already under pressure after China halted U.S. imports of the fuel a year ago amid trade tensions. Without commitments from Chinese buyers, some American export projects may be delayed or canceled.

Souki is the founder of Cheniere Energy Inc., the biggest U.S. LNG exporter, and served as its boss before being forced out. Houston was chief operating officer at BG Group Plc and was the key architect of its LNG business. BG, which has since

been acquired by Royal Dutch Shell Plc, signed the first purchase agreement with Cheniere in 2011.

Souki is worth about \$500 million, according to the Bloomberg Billionaires Index. That's largely from collecting money from shares sales of Cheniere.

Virus Rout Pushes U.S. Energy Explorers to Brink of Distress



The coronavirus outbreak that has sent markets worldwide on a collective nosedive is forcing U.S. oil and gas explorers already burning through borrowed cash and failing to deliver returns to the brink of distress.

Drillers' fall from grace has worsened as shareholders increasingly demand they shift their focus to generating cash

flow, instead of increasing production at any costs. Now, as bonds collapse, they face the double whammy of upset investors on both sides of capital markets – equity and debt.

The stocks of U.S. explorers are on average worth just a quarter of their peak in mid 2014, when oil started plunging from more than \$100 a barrel. The S&P Oil & Gas Exploration and Production Index has plunged 82% since.

This week's selloff exacerbated challenges facing distressed energy borrowers, which have been pressured by high debt loads, low commodity prices, disappointing earnings, and investors reluctant to keep financing them.

“The market has not really been open, or certainly hasn't been bullish, for energy companies for a long time now,” Spencer Cutter, an analyst for Bloomberg Intelligence, said in an interview Thursday.

High-yield energy has lost nearly 8% this year, compared to a loss of only 0.8% for the broad category of high-risk borrowers, according to Bloomberg Barclays data. Energy is the biggest contributor to \$105 billion of outstanding high-yield debt trading at distressed levels, with a distressed ratio of about 26%, according to Bloomberg Intelligence

Chesapeake Energy Corp., Whiting Petroleum Corp. and Gulfport Energy Corp. this week became the face of this dramatic change of fortune since the heyday of the shale boom and Gulf of Mexico exploration.

Chesapeake

Once at the vanguard of the U.S. shale revolution, Chesapeake has fallen headlong toward collapse as it and rival drillers flooded the U.S. with excess natural gas, crushing prices and destroying billions of dollars in value.

Its options for dealing with its towering debt load are scant.

Chief Executive Officer Doug Lawler mapped out a survival strategy predicated on a sweeping divestiture program that must be consummated within months in a market already glutted with North American gas holdings.

Chesapeake's shares have all but evaporated in value, trading below 30 cents. Its 11.5% bonds maturing in 2025 have plunged 28% this week to 57 cents on the dollar. The yield on the security, a measure of how much investors will demand in gains to take the risk of holding it for a year, has surged to almost 30%, about the same level as government bonds from troubled Lebanon.

Whiting Petroleum

Whiting's stock is down 75% this year amid reports that the oil producer is holding discussions with advisers to review its capital structure. The Denver-based company is looking at a potential debt exchange, Debtwire reported this month, citing people familiar with the matter.

Whiting and Chesapeake are among the names that are "poorly positioned" if an economic downturn were to push oil to \$40 a barrel and natural gas to \$1.75 per million British thermal units, analysts at Scotiabank wrote earlier this week in a note to investors.

The shale explorer's 2020 bond has plummeted 26% this week to 37.5 cents on the dollar, with the yield jumping to about 30%.

Gulfport Energy

Gulfport bonds, along with Chesapeake's and Whiting's, were among the energy debt securities that most tanked this week.

Earlier this month, Piper Sandler & Co. downgraded Gulfport Energy to neutral telling investors in a note: "darkness has devolved into pitch black" for the firm's outlook on the natural gas market.

Gulfport's 6% bonds due October 2024 fell to a record low of 33.75 cents on the dollar, to yield 37% on Friday.

Its shares have followed Chesapeake into penny stock territory, closing Friday at little more than 80 cents, after a 35% plunge this week.

LNG cargoes cancelled as virus compounds export glut in US



A buyer of liquefied natural gas has cancelled two cargoes from Cheniere Energy Inc, the biggest US exporter, as a glut pummels prices for the fuel and threatens to shut a key outlet for shale production.

Spanish utility owner Naturgy Energy Group SA has decided not to take delivery of two shipments from Cheniere, according to people with direct knowledge of the matter. The cargoes, one

of which was scheduled for April delivery, were rejected by Naturgy's clients Repsol SA and Endesa SA, who had originally purchased the volumes from Naturgy and will now pay a contractual fixed fee, the people said.

Cancellations of US cargoes were closely watched and highly anticipated amid a grim outlook on global prices. It could be an early sign that global oversupply is poised to hammer the US gas market, which is already straining under the weight of a domestic glut. Prices in Europe and Asia collapsed as storage levels rose during a mild winter, making it tougher for LNG buyers to make a profit reselling US cargoes abroad.

The coronavirus outbreak in China is stifling LNG demand from the world's fastest-growing importer. While the Asian nation hasn't directly imported any US cargoes in more than a year amid trade tensions, the virus has contributed to the global price rout.

The virus has wreaked havoc on commodity markets from LNG to copper while disrupting global industrial production, travel and supply chains. As Chinese demand for the fuel declined, PetroChina Co is said to have delayed discharge of multiple cargoes. The world's biggest LNG trader, Royal Dutch Shell Plc, said they're working with customers to reschedule or reroute deliveries. While lower prices are opening up demand in places such as India and Turkey, they're also testing Europe's ability to absorb extra supply in a weak market.

"We are seeing supply reduction before demand maximization in Northwest Europe," said Verena Viskovic, an analyst at BloombergNEF. Even with European benchmark Title Transfer Facility prices crashing more than a fifth since the start of the year, those TTF levels still "are not low enough to fully maximize lignite-to-gas switching," she said.

At current forward prices of US and European gas, the profit margins of delivering US LNG to Europe and to Asia are thin, according to a BloombergNEF noted last week. Exporters of US LNG may be forced to keep gas at home during the next seven months despite the potential demand in the German power sector.

At least two Japanese buyers are also considering cancelling cargoes from the US that they had expected to load before summer, according to traders with knowledge of the matter, adding that no final decisions have been made.

LNG exports have been a relief valve for US gas producers as output from shale basins soars to record highs. In the Permian Basin of West Texas and New Mexico, where gas is extracted as a byproduct of oil drilling, prices have slid below zero amid pipeline bottlenecks; that means producers are paying others to take their supply.

More gas-fired power plants would have to be built in the US and abroad to ease the current supply glut, said Campbell Faulkner, chief data analyst for commodities broker OTC Global Holdings.

**Mideast can deliver 8,500bcm
gas at \$2.5 per MMBtu average
breakeven prices by 2030:
Report**



The Middle East can deliver approximately 8,500bn cubic metres (bcm) of gas with average breakeven prices of \$2.5 per MMBtu [Million British Thermal Units] by 2030, a new report has shown.

While recent record low gas prices are due in part to oversupply in the global market, low-cost gas reserves are abundant, and the structural cost competitiveness of gas is improving, a joint report by Boston Consulting Group, Snam and International Gas Union reveals.

The natural gas market in the Middle East is experiencing a substantial growth phase, with its cost of supply remaining competitive in the long-term despite shale revolution. The recent report reveals that the Middle East and Asia-Pacific have demonstrated the strongest growth in gas demand the past ten years – growing at an average of 4.6% per year, double the rate of global primary energy demand.

The potential future for natural gas in the Middle East is strong, but realising it at full will require consistent support and coordinated action by industry, national governments, and the international community.

Although Middle East gas prices are largely subsidised and pricing structures largely regulated, the downward trajectory of gas prices is making gas more competitive with other fuels on a levelised basis. Costs rising above \$2.5 per MMBtu indicate a requirement for subsidies to keep prices low for end users.

The report forecasts that the Middle East could maintain its best-in-class position to 2030 despite an expected rise in production costs. However, infrastructure investment will need to grow faster across gas value chains to meet growth expectations.

Implementing growth levers for gas will require concerted actions from various stakeholders. These include the development of new business models and technologies from gas industry participants, effective policies from governments, and sustained capital commitments from financial institutions.

“The Middle East’s gas market has experienced dramatic growth in the past decade. Our research shows that access to gas and growth faces limitations in terms of local market regulations and infrastructure as well as the scale of investment in cross-border pipelines,” said Pablo Avogadri, partner and associate director at BCG.

“The region could realise enormous benefits through connecting gas reserves with end-use markets at a low cost, infrastructure investment, and policy support and adoption.”

US caves to Europe over broaching climate change at G20



The US gave into pressure from Europeans over environmental concerns, allowing the word “climate” into a joint communique at a conference overshadowed by a viral outbreak that’s shaken the global economy.

Delegates at the G20 meeting in Riyadh spent much of their time talking about a global slowdown exacerbated by the coronavirus outbreak, but struggled to come up with a united response, according to people familiar with the deliberations. Countries such as Japan, and institutions including the Organisation for Economic Co-operation and Development, have been pushing for those with surpluses to spend more.

One of the main addressees of the calls for more spending is Germany. So far, the export-driven country has showed little interest in significantly boosting expenditures, arguing fiscal stimulus can’t bolster foreign demand.

On climate change, differences of opinion in the Saudi capital were more stark. The US, represented by Treasury Secretary Steven Mnuchin, objected to including a reference to the subject, according to four people familiar with the communique-drafting process. The Saudi delegation, which is hosting the event, didn’t show much enthusiasm for it either, according to two of them.

After several days of heated debate, including France finance

chief Bruno Le Maire cornering Mnuchin late on Saturday in Riyadh as the G20 economic leaders dined, the US reluctantly agreed to a mention of climate change, according to two people familiar with the matter.

A Treasury spokeswoman didn't reply to a request for comment. As of Sunday morning in Riyadh, it was also looking unlikely that representatives would leave Saudi Arabia with any breakthroughs on a global taxation system that would apply to multi-national companies including tech giants like Alphabet Inc's Google and Facebook Inc, according to the people.

Europeans have balked at a US proposal that new global rules should be a "safe harbour" regime. Mnuchin sought to reassure his counterpart by insisting such a system would not mean the rules would be optional, but Europeans said they still needed to fully assess the proposal.

If there's no agreement, several European nations will go ahead with taxes on revenues of multinational digital firms. That could spark a transatlantic trade war as the US says such measures are discriminatory and has already threatened France with tariffs.

France and the US have held tense discussions on the subject since France introduced a 3% levy last year on the digital revenue of companies that make their sales primarily online. The move was supposed to give impetus to international talks to redefine tax rules, and the government has pledged to abolish its national tax if there is agreement on such rules.

In introducing a so-called global minimum tax – a measure intended to prevent large companies from shifting profits to low-tax locales to avoid paying them at home – the sides are closer to compromise as there's little difference among current corporate tax rates among major economies, and little concern that the minimum tax would be too low, one person said.

Asian LNG prices rise as buying interest jumps



Asian spot prices for liquefied natural gas (LNG) rose this week after five weeks of declines, as lower prices sparked cargo purchasing interest from various buyers.

The average LNG price for April delivery into northeast Asia was yesterday estimated at around \$3.00 per million British thermal units (mmBtu), some \$0.30 per mmBtu higher than the front-month price last week, which was assessed for March.

“Many players are trying to buy due to low price levels, there are lots of tenders and bids,” an LNG trader said.

Fears that the coronavirus outbreak in China would weigh on demand are receding, two industry sources said, which has also supported the prices.

Indian buyers who have been active in the market over the past several weeks on an LNG price drop to record low levels, continued issuing spot and multi-cargo tenders.

India is estimated to import about 2.36mn tonnes of LNG in

February, record monthly volumes for the South Asian nation. Among companies which sought cargoes for delivery to India were Reliance Industries with a five-cargo tender for April to June supply, Emirates National Oil Company (ENOC) with April to November delivery eight-cargo tender and Gail India with a swap tender for three cargoes in February to March.

There were single cargo tenders from India's Gujarat State Petroleum Corp (GSPC) who sought a March cargo and Indian Oil who was looking to buy an April cargo.

Prices in some of the tenders were ranging from around \$2.50/mmBtu to just below \$3.00/mmBtu, several market sources said.

Additionally, Qatargas' Al Hamla LNG tanker is currently on route to India's newly commissioned Mundra LNG Terminal to deliver the first commercial cargo at the facility, Kpler said.

Buying interest also came from Jordan's Nepco who was looking for an April cargo, as well as Turkey's Botas who sought three March cargoes.

Botas awarded all three cargoes, three sources said, and prices could be as low as around \$2.50/mmBtu, one of them added.

There was also a tender from Taiwan's CPC in the past fortnight, two sources said, with one adding that the tender was for three cargoes to be delivered from April to June.

The number of bids on S&P Global Platts Market on Close window also grew this week, with some bids reaching \$3.00/mmBtu for late March and early April yesterday.

The global LNG market remains heavily oversupplied, however, with spreads between gas prices globally shrinking and market players expecting production cuts.

Spain's Naturgy has cancelled loading of one LNG cargo in the United States in April amid a slump of global gas prices, with several other companies having considered cancellations as well, sources told Reuters.

In terms of supply offers, Gail India was selling three US cargoes as part of a swap tender to sell and buy cargoes.

Angola LNG closed a tender for mid-March delivery and opened another for late March, a market source said.

Royal Dutch Shell said on Tuesday it had temporarily suspended production at its Prelude floating LNG facility off northwest Australia following an electrical trip on February 2.

Electrical tape on speed limit signs tricks Tesla vehicles into violations



McAfee security researchers were able to trick Tesla vehicles into breaking the law by placing electrical tape on speed limit signs, in a demonstration of another vulnerability for self-driving cars.

In findings disclosed by McAfee through its official blog, the security company revealed that it fooled 2016 models of Tesla's Model X and Model S, which used camera systems by

Intel's Mobileye, into breaking speed limits with the strategic placement of electrical tape.

Researchers applied a single piece of black electrical tape to extend the middle line in the "3" of a 35-miles-per-hour speed limit sign. This tricked the MobilEye camera into reading the sign as 85 miles per hour, forcing the Tesla vehicle's cruise control system to accelerate the car beyond the true speed limit.

Intel disputes that the trick was an adversarial attack, as the tape may also have fooled some human drivers into thinking that the tampered sign said 85 miles per hour.

Tesla, however, stopped using Mobileye's camera systems in 2016, which means that the newer Tesla vehicles are not affected by the electric tape trick. In addition, other vehicles using newer versions of Mobileye technology also appear to be resistant to the manipulation.

QP affiliate books 3mn tpy throughput capacity in France's LNG terminal



Under the agreement, Qatar Terminal Limited (QTL) – a subsidiary of Qatar Petroleum – will subscribe to the

equivalent of almost 3mn tonnes per year (tpy) of the terminal's throughput capacity for the next 15 years.

An affiliate of Qatar Petroleum and the French LNG terminal operator Elengy, a subsidiary of ENGIE Group, have entered into a long-term agreement for LNG receiving, storage and regasification services at the Montoir-de-Bretagne LNG Terminal in France.

Under the agreement, Qatar Terminal Limited (QTL) – a subsidiary of QP – will subscribe to the equivalent of almost 3mn tonnes per year (tpy) of the terminal's throughput capacity for a term up to 2035.

Montoir-de-Bretagne LNG will thereby become a new LNG import terminal position for QP in Europe, facilitating the supply of Qatari and internationally sourced LNG to French and European customers.

The agreement is the result of a formal "Open Subscription Period" process that was concluded during the second half of 2019 pursuant to the rules of the French Energy Regulatory Commission (CRE).

The agreement was signed at a ceremony held in Paris on Thursday by HE the Minister of State for Energy Affairs Saad bin Sherida al-Kaabi, also the president and CEO of QP, and Sandra Roche-Vu Quang, CEO, Elengy, in the presence of Jean-Baptiste Lemoyne, France's Minister of State attached to the Minister for Europe and Foreign Affairs.

At the signing ceremony, al-Kaabi said, "By signing this agreement, we are providing France, and Europe as a whole, reliable energy supplies, as well as increased utilisation of gas as a cleaner and more environmentally friendly source of energy.

"We are also taking another step into the future by establishing a long-term partnership with Elengy well into the

next decade. And, we look forward to further strengthen this relationship in the future.”

Al-Kaabi also highlighted the strong Qatari-French partnerships in general and especially in the energy sector, as well as QP’s commitment to Europe’s energy security.

“Qatar Petroleum has long invested in and anchored LNG receiving terminal capacity in Europe. We have also played a key role in supporting the development of vital energy network infrastructure in Europe. As the largest LNG producer, we are committed to supporting the advancement of EU energy policy and to strengthening the security, reliability and flexibility of gas supplies into Europe,” al-Kaabi noted.

Roche-Vu Quang said, “Today is a key milestone for Elengy. As pioneers in the LNG industry, we are extremely proud of this agreement with our Qatari partners, a major step which hopefully will result in an even closer co-operation in the coming years. This contract secures long-term activity at the Montoir-de-Bretagne terminal.

“Our LNG hub for North West Europe offers customers optimum flexibility and an evolving range of services, from historical LNG regasification to small scale LNG, to meet the energy transition needs.”

Located on France’s Atlantic coast, the Montoir-de-Bretagne LNG Terminal was commissioned in 1980 and is fully regulated by the CRE. The terminal currently has 360,000 cubic metres of LNG storage capacity spread across three tanks and an annual throughput capacity of 10bn cubic meters of natural gas.

The terminal is operated by Elengy, which has over 50 years of LNG experience and operates two other terminals in France- Fos Tonkin and Fos Cavaou on the Mediterranean coast.

The ceremony was attended among others by senior executives from QP and Elengy.

The Rich World Must Take Responsibility for Its Carbon Footprint



China and other developing economies are instinctively wary of developed-country proposals to combine domestic carbon prices with “carbon tariffs” imposed on imported goods. But such policies may be the only way for rich-world consumers to take responsibility for their carbon footprint in other countries.

LONDON – The climate activist Greta Thunberg has accused developed economies of “creative carbon accounting” because their measures of greenhouse-gas (GHG) emissions, and of achieved and planned reductions, fail to consider the gases emitted when imported goods are produced in other countries. As Chinese officials quite rightly point out, about 15% of their country’s emissions result when goods are made in China but consumed in other, usually richer, economies.

China and other developing economies also are instinctively wary of developed-country proposals to combine domestic carbon prices with “carbon tariffs” imposed on imported goods. But such policies may be the only way for rich-world consumers to take responsibility for their carbon footprint in other countries.

The “creative accounting” charge would be unfair if it were meant to imply deliberate concealment; the United Kingdom’s government, for example, publishes an easily accessible carbon-footprint report. But the figures certainly support Thunberg’s point. In 2016, the UK emitted 784 million tons of GHGs on a consumption basis, versus 468 million tons on a production basis. And from 1997-2016, the UK’s consumption-based emissions fell by only 10%, compared to a 35% decrease in production-related emissions.

Likewise, the European Union’s total consumption-based emissions are about 19% higher than those related to production. And while the United States’ gap of 8% is smaller in percentage terms, on a *tons-per-capita* basis it is just as large.

China is easily the biggest counterpart to this developed-economy gap, with consumption emissions of about 8.5 gigatons per year, versus ten gigatons on a production basis. And while China’s *per capita* emissions have already overtaken the UK’s on a production basis, it will be several years before the country’s *per capita* consumption footprint exceeds that of the UK.

So, if the developed world is serious about limiting potentially catastrophic climate change, it must take responsibility for emissions that its consumption generates abroad.

There are only two ways to do this. One is for the rich world to consume less. But although more responsible lifestyles –

buying fewer clothes, cars, and electronic goods, or eating less red meat – should certainly play a role in making zero-carbon economies possible, such changes alone will not get us close to zero emissions. Nor will they necessarily close the consumption-versus-production gap, because consumption of domestically produced goods could fall as much as that of imports. And reduced imports by developed countries mean reduced exports for poorer economies, creating challenges for economic development.

The alternative is to ensure that imported goods are produced in a low- and eventually zero-carbon fashion. The ideal policy to achieve this would be a globally agreed carbon price, which would encourage producers in all countries to adopt low- or zero-carbon technologies. Absent this ideal, there are now growing calls in Europe and the US for a second-best solution – domestic carbon prices imposed in particular countries plus “border carbon adjustments,” meaning carbon-related tariffs on imports from countries that do not impose an equivalent carbon price on their producers.

The immediate reaction of policymakers in China, India, and many other developing countries may be to condemn such policies as yet more protectionism in a world already destabilized by US President Donald Trump’s tariff wars. And anti-Chinese political rhetoric in the US – sometimes including the absurd accusation that China is an irresponsible polluter even though its *per capita* emissions are half those of the US – creates a difficult environment for rational policy assessment.

But in most industries, the combination of domestic carbon prices and border carbon tariffs poses no threat to the competitiveness and growth prospects of exporting companies in developing economies. Imagine that European steel producers were subject to a new carbon tax of €50 (\$54) per ton of CO₂ within Europe, which also applied to imports of steel from

China or anywhere else. In that case, the relative competitive position of European and foreign steel producers seeking to serve European customers would be unchanged compared to the no-tax starting point. And Chinese or Indian steelmakers, or companies in other high-emission sectors, are as well placed as their European or US peers to adopt new technologies that reduce the carbon content of their exports (and thus their liability to border carbon taxes).

Indeed, domestic carbon prices plus border adjustments are simply an alternative route to achieving the international level playing field that ideally would be secured through a global carbon price applied simultaneously in all countries. There is one crucial difference, though: if carbon taxes are imposed at the importing country's border, rather than within the exporting country, then the importing country gets to keep the tax revenue.

That fact increases the incentive for exporting countries to impose equivalent domestic carbon taxes, rather than leaving their companies to pay taxes at the importing country's borders. As a result, domestic carbon taxes with border adjustments could well prove to be an effective stepping-stone toward common global carbon prices, even if explicit international agreement on a global regime cannot be achieved.

Furthermore, such an approach suggests a potentially attractive way to encourage wider acceptance of border tariffs as being legitimate, necessary, and unthreatening. To be sure, the revenues from any carbon taxes levied on domestic producers should be used within the domestic economy – whether to support investment in low-carbon technologies or as a “carbon dividend” returned to citizens. But there is a good argument for channeling the revenues from carbon tariffs to overseas aid programs designed to help developing countries finance their transition to a zero-carbon economy.

Thoughtful developing-economy negotiators should argue for

such revenue transfers, rather than opposing a policy that developed countries will have to deploy. After all, richer economies must not only drive down their own industrial emissions, but also take responsibility for those that their consumption is generating elsewhere in the world.

Gas demand in transport sector to rise 3.5% annually to 478bcm in 2050: GECF



Gas demand in the transport sector has been forecast to rise at an annual pace of 3.5% over the GECF outlook period (until 2050), much faster than in other sectors, achieving about 478bcm in 2050. Transport utilisation will account for 8% of global gas consumption, Doha-based Gas Exporting Countries Forum (GECF) said in its latest outlook. In 2018, natural gas

demand in the transport sector totaled 157bcm, constituting 4% of global gas consumption. Nearly 56% (87bcm) was related to the usage in pipeline transport, 44% to the road (58bcm) and marine (11bcm) segments, GECF said in its 'Global gas outlook 2050' released in Doha recently. GECF forecasts show that this robust gas demand growth rate will be encouraged by important progress in natural gas vehicles (NGVs), partially through policy initiatives aimed at offsetting transportation emissions, which account for more than 24% of global GHG emissions. The International Maritime Organisation (IMO) regulations are also forecast to have an impact on gas demand in transport, as the maritime industry begins to switch to Liquefied natural gas (LNG). "In spite of the growing interest of gas applications in the railway industry, demand volumes in this segment are forecast to develop at a moderate pace, while road transport will drive consumption," GECF noted. About 214bcm of incremental gas volumes to 2050 are expected to stem from the development of the global NGV market. The use of LNG as a marine bunkering will be another promising area with additional consumption of 76bcm within the forecast horizon. Overall, global gas demand in the land and marine transport segments (excluding gas used in pipeline transport) is projected to rise by about 300bcm, from 70bcm in 2018 to over 370bcm by 2050. It will correspond to a growth rate of 5.4% per year, GECF noted. The increasing availability of natural gas, together with its economic and environmental advantages, make NGVs a very prominent alternative to diesel and gasoline-based engines in road transport. Liquefied petroleum gas (LPG) is also widely used across the world. However, being a mixture of propane and butane it is not as clean as natural gas, whose main chemical component is methane. Over the last decades natural gas, predominantly in the form of compressed natural gas (CNG), has made remarkable progress in various sub-markets – passenger buses, light commercial vehicles (LCVs) as well as heavy-good vehicles (HGVs) and special mining and haulage company trucks. Surging by almost 17% per year, natural gas demand in the road transport segment increased from 4bcm in

2000 to about 58bcm in 2018. Major contributions to this growth came from Asia Pacific (China, India, Pakistan) and the Middle East (particularly, Iran), while Latin America countries (mainly, Argentina and Brazil) experienced moderate rise, staying around the same volumes from 2005 to 2018. In spite of the impressive growth rate, natural gas represents less than 2.5% of the total energy consumed in the global road transport market, which is currently dominated by oil-based products – gasoline and diesel – with a 96% share. As many countries are adjusting legislation to reduce the environmental impact of transportation modes and setting targets to mitigate air pollution, GECF anticipates that the role of methane in this segment will grow over the forecast period, assuming a higher uptake of NGVs and a corresponding level of gas demand. Favourable government policies and regulatory frameworks are expected to be the forces driving increasing penetration of natural gas in road transport. The natural gas share of energy demand in the global road transport market (estimated to grow from 2,154mn tonnes oil equivalent – Mtoe in 2018 to 2,420Mtoe by 2050) – is forecast to rise from 2.5% in 2018 to 10% by 2050, while petrol and diesel will go down from 96% to 83%. Over the same period, electricity use is projected to increase from 0.3% to 6%, a much more impressive growth. Given that EV penetration into all vehicle classes is underway, they are considered to be a more realistic option for the passenger, public transport and LCV segments, while the potential of NGVs could be much higher in the HGV segment, where transport costs are more vital. Moreover, environmental regulations are set to be stricter, propelling fuel replacement in oil-based products. In this context, GECF noted the future prospects of natural gas will be mostly concentrated in HGVs, driven by anticipated restrictions on the use of diesel trucks in a range of countries. The majority of gas demand is expected to come from LNG powered trucks thanks to their high annual mileage. It is worth mentioning that governments of more than 10 countries in 2017-2019 introduced forward-looking sales bans on new diesel

or petrol vehicles for 2025-2040, which represents an additional push for gas usage, GECF said.